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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Re the Application of:

MICKE et al.

Serial No.: 10/005,797

Filed: November 2, 2001

Atty. File No.: 3957-8-DIV

For: "METHOD AND APPARATUS FOR
REMOVING OBSTRUCTIONS IN
MINES"Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313RECEIVED
SEP 04 2003
GROUP 3600

Dear Sir:

A Notice of Abandonment was mailed in connection with the above-identified patent application on July 24, 2003. Applicants respectfully traverse the holding of abandonment, on the grounds that a timely response to the Office Action of December 3, 2002 was filed.

On February 21, 2003, an Amendment and Response in reply to the Office Action of December 3, 2002, was mailed to the Patent Office under a certificate of mailing in accordance with 10/23/2003 CCOFER 0000003 191970 10005797 01 FC:1202 37 C.F.R. §1.8. A copy of the Amendment and Response is attached as Exhibit A. A postcard receipt submitted to the Patent Office with the Amendment and Response, and date-stamped by the OIPE on February 21, 2003, was received by the office of the Applicant's attorneys on March 6, 2003, and evidences the timely filing of the Amendment and Response (see Exhibit B).

In addition, the office of Applicants' attorneys was contacted by the Examiner by telephone regarding the status of the application. During that telephone conference, it became apparent that

) Group Art Unit: 3643
)
) Examiner: Price, Richard Thomas Jr.
)
) REQUEST FOR RECONSIDERATION
) OF ABANDONMENT
)
)

"EXPRESS MAIL" MAILING LABEL NUMBER: EV 331291709 US
DATE OF DEPOSIT: 8/28/03

I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING
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1450, ALEXANDRIA, VA 22313-1450.

TYPED OR PRINTED NAME: Mary Anne Davitt
SIGNATURE: Mary Anne Davitt

the Amendment and Response of February 21, 2003, had not been matched with the patent application file. Accordingly, a Request for Consideration of Amendment and Response was filed by Applicants' attorneys under a certificate of mailing dated July 18, 2003. (Exhibit C). A postcard receipt submitted to the Patent Office with the Request for Consideration of Amendment and Response, and date stamped by the OIPE on July 18, 2003, was received by the office of the Applicants' attorneys on July 28, 2003. (Exhibit D).

Because a timely response to the Office Action of December 3, 2002, was filed, there was no abandonment in fact of this patent application. Furthermore, because a timely reply was filed, there is no need to revive the patent application. Instead, the holding of abandonment should be reconsidered and withdrawn, and the Amendment and Response filed on February 21, 2003 should be considered in reply to the Office Action. (See M.P.E.P § 711.03).

The Examiner is invited to contact the undersigned by telephone if doing so would expedite the resolution of this case.

Respectfully submitted,

SHERIDAN ROSS P.C.

By:


Bradley M. Knepper
Registration No. 44,189
1560 Broadway, Suite 1200
Denver, Colorado 80202-5141
(303) 863-9700

Date: August 28, 2003



A handwritten signature in black ink, appearing to read "J. C. H."

EXHIBIT A

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Application No. 10/055,797

AMENDMENTS

IN THE CLAIMS:

Please amend Claim 1 and add new Claims 37-39 as follows:

b1

1. (Once Amended) A system for launching a projectile to remove a body of rock in an excavation, comprising:
 - a projectile that includes:
 - a nose, the nose being one of substantially flat and concave to inhibit deflection of the projectile from a face of the rock;
 - a body containing an explosive charge; and
 - a tail having a plurality of fins to control the trajectory of the projectile;
 - and
 - a tube for launching the projectile.

b2
b3

37. (New) The system of Claim 1, wherein said nose is concave.

38. (New) The system of Claim 1, wherein said nose is substantially flat.

39. (New) The system of Claim 1, wherein said nose has a diameter that is about equal to a maximum diameter of said projectile.

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REMARKS

The above-identified patent application has been reviewed in light of the Examiner's Action dated December 3, 2002. In the amendments set forth above, Claim 1 has been amended without intending to abandon or to dedicate to the public any patentable subject matter, and without narrowing the claim, Claims 37-39 are new, and no claims have been canceled. Accordingly, Claims 1-8 and 37-39 are now pending. As set out more fully below, reconsideration and withdrawal of the rejections of the claims are respectfully requested.

Claims 1-8 stand rejected under 35 U.S.C. §103 as being unpatentable over U.S. Patent No. 5,485,787 to Bowcutt et al. ("Bowcutt"). In order to establish a *prima facie* case of obviousness under 35 U.S.C. §103, there must be some suggestion or motivation to modify the reference, there must be a reasonable expectation of success, and the prior art reference must teach or suggest all of the claim limitations. (MPEP §2143). It is submitted that a *prima facie* case to reject Claims 1-8 has not been established. In particular, and as discussed more fully below, Bowcutt does not teach, suggest or disclose at least the feature of a projectile having a nose that is one of substantially flat and concave. Accordingly, for at least this reason, Claims 1-8 are not obvious in view of Bowcutt.

The Bowcutt reference is generally directed to a gas gun launched scramjet test projectile. The test projectile discussed by Bowcutt is designed to travel at velocities greater than Mach 5. The projectile is propulsion-assisted and is used to enable the simulation of flow physics and the acquisition of performance data that correlates directly to those of a scramjet powered vehicle. (Bowcutt, col. 4, lns. 5-7). Accordingly, the projectile discussed by Bowcutt is concerned with

the integration of the air frame and propulsion systems for vehicles or projectiles traveling at supersonic and hypersonic speeds. (See Bowcutt, col. 1, lns. 27-30). The projectile illustrated by Bowcutt includes a nose cap 101 secured to the forebody 102 to form an external surface that extends from the projectile nose tip 103 rearwardly to the vicinity of the leading edge of the cowl 110. (Bowcutt, col. 5, lns. 5-9). Because the projectile 100 is intended to travel at velocities greater than Mach 5 (Bowcutt Abstract, Claim 1), and because parameters that include the forebody and inlet contraction ratios, the inlet efficiency, etc., impacts the performance of ramjet and scramjet systems (Bowcutt, col. 1, ln. 65 to col. 2, ln. 3), there is no teaching, suggestion or disclosure of a substantially flat or concave nose as recited by the pending claims. In addition, because removal of the nose 101 would foreshorten the compression surface S and leave an unfinished threaded portion T, Bowcutt cannot be understood as teaching, suggesting or disclosing operation of that reference's projectile without the tip 101. (Bowcutt, col. 4, ln. 63 to col. 5, ln. 9; Fig. 1). Furthermore, because Bowcutt is concerned with propelling a projectile at velocities of greater than Mach 5, Bowcutt teaches away from a projectile with a nose that is substantially flat or concave, or a nose that is adapted to inhibit deflection of the projectile from a face of rock in an excavation.

For the reasons set forth above, the Bowcutt reference does not teach, suggest or disclose a system for launching a projectile to remove a body of rock in an excavation as claimed. Furthermore, the Bowcutt reference teaches away from specific structural aspects of the claimed system. Accordingly, the rejections of Claims 1-8 should be reconsidered and withdrawn.

Application No. 10/055,797

New Claims 37-39 depend from Claim 1, and recite specific projectile nose configurations disclosed by the specification. Therefore, Claims 37-39 are allowable for at least the same reasons that Claim 1 is allowable. Claims 37-39 do not add new matter.

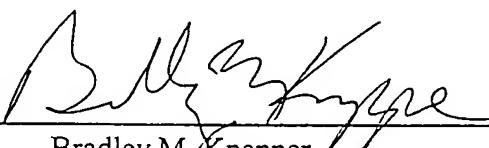
Attached hereto is a marked up version of the changes made to the claims by the current amendment, captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

Based upon the foregoing, Applicants believe that all pending claims are in condition for allowance and such disposition is respectfully requested. In the event that a telephone conversation would further prosecution and/or expedite allowance, the Examiner is invited to contact the undersigned.

Respectfully submitted,

SHERIDAN ROSS P.C.

By:



Bradley M. Knepper
Registration No. 44,189
1560 Broadway, Suite 1200
Denver, Colorado 80202-5141
(303) 863-9700

Date: February 21, 2003



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

MICKE et al.

Serial No.: 10/005,797

Filed: November 2, 2001

Atty. File No.: 3957-8-DIV

For: "METHOD AND APPARATUS FOR
REMOVING OBSTRUCTIONS IN
MINES"

Assistant Commissioner for Patents
Washington, D.C. 20231

) Group Art Unit: 3643

) Examiner: Price, Richard Thomas Jr.

AMENDMENT AND RESPONSE

"EXPRESS MAIL" MAILING LABEL NUMBER: EL923668676US
DATE OF DEPOSIT: 2/21/03

I HEREBY CERTIFY THAT THIS WITH THE UNITED STATES
POSTAL SERVICE "EXPRESS MAIL POST OFFICE TO
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INDICATED ABOVE AND IS ADDRESSED TO THE ASSISTANT
COMMISSIONER FOR PATENTS, WASHINGTON, D.C. 20231.

TYPED OR PRINTED NAME: Aimee M. Thuerk

SIGNATURE:

Dear Sir:

Applicant submits this Amendment and Response to address the Office Action having a mailing date of December 3, 2002. Although the Applicant believes that no fees are due for filing this Amendment and Response, please charge any fees deemed necessary to Deposit Account No. 19-1970. Reconsideration and withdrawal of the rejections of the claims are respectfully requested in view of the following amendments and remarks:

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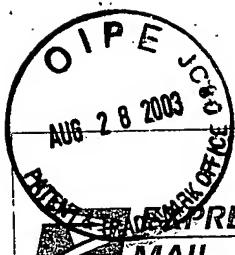
VERSION WITH MARKINGS TO SHOW CHANGES MADE

Claim 1 has been amended as follows:

1. (Once Amended) A system for launching a projectile to remove a body of rock in an excavation, comprising:
 - a projectile that includes:
 - a nose, the nose being one of substantially flat and concave to inhibit deflection of the projectile from a face of the rock;
 - a body containing an explosive charge; and
 - a tail having a plurality of [transversely oriented] fins to control the trajectory of the projectile; and
 - a tube for launching the projectile.

Claims 37-39 are new.

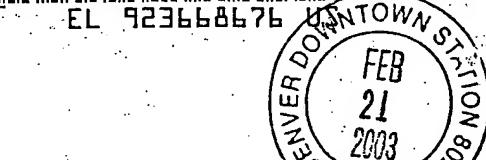
EXHIBIT B



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ORIGIN (POSTAL USE ONLY)		Day of Delivery <input checked="" type="checkbox"/> Next <input type="checkbox"/> Second	Flat Rate Envelope <input checked="" type="checkbox"/>
PO ZIP Code 80202	Date In 2-21-03	Postage \$ 1365	
Date In 2-21-03	Time In 19:46	Military <input checked="" type="checkbox"/> 12 Noon <input type="checkbox"/> 3 PM	Return Receipt Fee
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3957-8-DIV AMT

Initial: **AMT**

Date 2/21/03

PTO Stamp indicates receipt of: Patent Matter Trademark Matter

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Application Docket No.: **3957-8-DIV**

Applicant: **MICKE et al.**

Title or Mark: "METHOD AND APPARATUS FOR REMOVING OBSTRUCTIONS IN MINES"

Serial/Reg. No.: **10/005,797**

Filed/Issued Date: November 2, 2001

Certificate of Mailing

Express Mail No.: **EL923668676US**

Check for \$ **180.00**



of Pages in Specification

of Pages in Claims

of Sheets in Drawings

of Pages in Seq. Listing

LIST ALL DOCUMENTS BEING SENT TO PATENT OFFICE:

Amendment and Response; Information Disclosure Statement; PTO Form 1449; copies of three references

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EXHIBIT C

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:

MICKE et al.

Serial No.: 10/005,797

Filed: November 2, 2001

Atty. File No.: 3957-8-DIV

For: "METHOD AND APPARATUS FOR
REMOVING OBSTRUCTIONS IN
MINES"

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

Dear Sir:

On July 11, 2003, the office of Applicants' attorney was contacted by the Examiner regarding the status of a reply to the Office Action having a mailing date of December 3, 2002. In particular, the Examiner indicated that the Patent Office had no record of having received a reply to that Office Action.

On February 21, 2003, an Amendment and Response in reply to the Office Action of December 3, 2002, was mailed to the Patent Office under a Certificate of Mailing in accordance with 37 CRF § 1.8. A postcard receipt submitted to the Patent Office with the Amendment and Response, and date stamped by the OIPE on February 21, 2003, was received by the office of the Applicants' attorneys on March 6, 2003, and evidences the timely filing of the Amendment and Response (see Exhibit A). The accompanying Declaration of Aimee Thuerk and the attachments thereto also evidence the timely filing of the Amendment and Response (see Exhibit B). A copy of the Amendment and Response submitted on February 21, 2003 is submitted herewith (see Exhibit C).

"EXPRESS MAIL" MAILING LABEL NUMBER: EV 331292390 US
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TYPED OR PRINTED NAME: Amy S. Duarte

SIGNATURE:

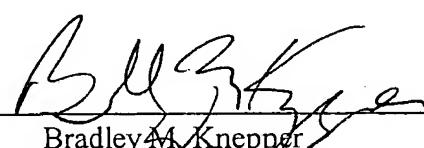
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GROUP 3600

In view of the foregoing, Applicants respectfully request that the Amendment and Response originally submitted on February 21, 2003, be considered timely filed. Although no fees are believed due in connection with the filing of this request, please charge any fees deemed necessary to Deposit Account No. 19-1970.

Respectfully submitted,

SHERIDAN ROSS P.C.

By:


Bradley M. Knepper
Registration No. 44,189
1560 Broadway, Suite 1200
Denver, Colorado 80202-5141
(303) 863-9700

Date: July 18, 2003



A

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Initial: AM1*

Date 2/21/03

PTO Stamp indicates receipt of: Patent Matter Trademark Matter

Application Docket No.: 3957-8-DIV

Applicant: MICKE et al.

Title or Mark: "METHOD AND APPARATUS FOR REMOVING OBSTRUCTIONS IN MINES"

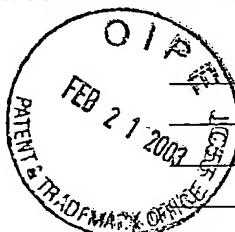
Serial/Reg. No.: 10/005,797

Filed/Issued Date: November 2, 2001

Certificate of Mailing

Express Mail No.: EL92366867US

Check for \$180.00



of Pages in Specification
of Pages in Claims
of Sheets in Drawings
of Pages in Seq. Listing

LIST ALL DOCUMENTS BEING SENT TO PATENT OFFICE:

Amendment and Response; Information Disclosure Statement; PTO Form 1449; copies of three references

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MAR 06 2003
SARAH ANN ROSS

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B



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Re the Application of:
MICKE et al.
Serial No.: 10/005,797
Filed: November 2, 2001
Atty. File No.: 3957-8-DIV
For: "METHOD AND APPARATUS FOR
REMOVING OBSTRUCTIONS IN
MINES"
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

) Group Art Unit: 3643
)
) Examiner: Price, Richard Thomas Jr.
)
) DECLARATION OF AIMEE M. THUERK
) IN SUPPORT OF REQUEST FOR
) CONSIDERATION OF AMENDMENT AND
) RESPONSE

"EXPRESS MAIL" MAILING LABEL NUMBER: EV331292390 US
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1450, ALEXANDRIA, VA 22313-1450.

TYPED OR PRINTED NAME: Amy S. Duarte

SIGNATURE: *Amy Stuart*

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GROUP 3600

Dear Sir:

I, Aimee M. Thurek, declare and state as follows:

1. I am a secretary employed by Sheridan Ross P.C., the attorneys of record for the above-referenced application.
2. On February 21, 2003, I prepared an Amendment and Response for signature by Bradley M. Knepper.
3. Following Mr. Knepper's signature on the Amendment and Response, I also signed the Certificate of Mailing. I then prepared a stamped, self-addressed return postcard for mailing to the Patent Office. I placed the completed Amendment and Response and completed return postcard in an Express Mail envelope addressed to Assistant Commissioner for Patents, Washington, D.C. 20231, and sealed the envelope. Copies of the February 21, 2003 Amendment and Response (Exhibit A), postcard (Exhibit B), and Express Mail receipt (Exhibit C) are attached. The postcard identifies the Amendment and Response and additional documents submitted with the Amendment

and Response, namely, an Information Disclosure Statement, PTO Form 1449, and copies of references.

4. Pursuant to Sheridan Ross P.C.'s procedures, I then personally placed the envelope in the mail department at Sheridan Ross P.C. prior to 5:00 p.m. for Express Mail postage processing and deposit with the United States Post Office.

5. The return postcard, date stamped by the OIPE on February 21, 2003, was received by Sheridan Ross P.C. on March 6, 2003. A copy of the date stamped postcard is attached as Exhibit B.

Date: 7-18-03

Aimee M. Thurek
Aimee M. Thurek



EXHIBIT D

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3957-8-DIV/asd

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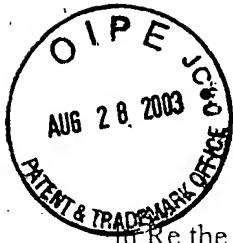
Delivery Date

Mo. Day Time AM PM

Employee Signature



EXHIBIT A



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:

MICKE et al.

Serial No.: 10/005,797

Filed: November 2, 2001

Atty. File No.: 3957-8-DIV

For: "METHOD AND APPARATUS FOR
REMOVING OBSTRUCTIONS IN
MINES"

Assistant Commissioner for Patents
Washington, D.C. 20231

) Group Art Unit: 3643

) Examiner: Price, Richard Thomas Jr.

AMENDMENT AND RESPONSE

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INDICATED ABOVE AND IS ADDRESSED TO THE ASSISTANT
COMMISSIONER FOR PATENTS, WASHINGTON, D.C. 20231.

TYPED OR PRINTED NAME: Aimee M. Thuerk

SIGNATURE: Aimee M. Thuerk

Dear Sir:

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AUG 28 2003
Application No. 10/055,797

AMENDMENTS

IN THE CLAIMS:

Please amend Claim 1 and add new Claims 37-39 as follows:

1. (Once Amended) A system for launching a projectile to remove a body of rock in an excavation, comprising:

a projectile that includes:

a nose, the nose being one of substantially flat and concave to inhibit deflection of the projectile from a face of the rock;

a body containing an explosive charge; and

a tail having a plurality of fins to control the trajectory of the projectile;

and

a tube for launching the projectile.

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SEP 04 2003

GROUP 3600

37. (New) The system of Claim 1, wherein said nose is concave.

38. (New) The system of Claim 1, wherein said nose is substantially flat.

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REMARKS

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The Bowcutt reference is generally directed to a gas gun launched scramjet test projectile. The test projectile discussed by Bowcutt is designed to travel at velocities greater than Mach 5. The projectile is propulsion-assisted and is used to enable the simulation of flow physics and the acquisition of performance data that correlates directly to those of a scramjet powered vehicle. (Bowcutt, col. 4, lns. 5-7). Accordingly, the projectile discussed by Bowcutt is concerned with

the integration of the air frame and propulsion systems for vehicles or projectiles traveling at supersonic and hypersonic speeds. (See Bowcutt, col. 1, lns. 27-30). The projectile illustrated by Bowcutt includes a nose cap 101 secured to the forebody 102 to form an external surface that extends from the projectile nose tip 103 rearwardly to the vicinity of the leading edge of the cowl 110. (Bowcutt, col. 5, lns. 5-9). Because the projectile 100 is intended to travel at velocities greater than Mach 5 (Bowcutt Abstract, Claim 1), and because parameters that include the forebody and inlet contraction ratios, the inlet efficiency, etc., impacts the performance of ramjet and scramjet systems (Bowcutt, col. 1, ln. 65 to col. 2, ln. 3), there is no teaching, suggestion or disclosure of a substantially flat or concave nose as recited by the pending claims. In addition, because removal of the nose 101 would foreshorten the compression surface S and leave an unfinished threaded portion T, Bowcutt cannot be understood as teaching, suggesting or disclosing operation of that reference's projectile without the tip 101. (Bowcutt, col. 4, ln. 63 to col. 5, ln. 9; Fig. 1). Furthermore, because Bowcutt is concerned with propelling a projectile at velocities of greater than Mach 5, Bowcutt teaches away from a projectile with a nose that is substantially flat or concave, or a nose that is adapted to inhibit deflection of the projectile from a face of rock in an excavation.

For the reasons set forth above, the Bowcutt reference does not teach, suggest or disclose a system for launching a projectile to remove a body of rock in an excavation as claimed. Furthermore, the Bowcutt reference teaches away from specific structural aspects of the claimed system. Accordingly, the rejections of Claims 1-8 should be reconsidered and withdrawn.

Application No. 10/055,797

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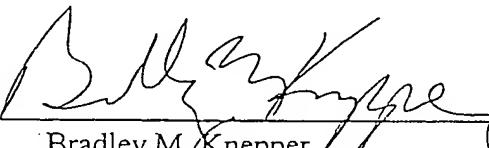
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Respectfully submitted,

SHERIDAN ROSS P.C.

By:


Bradley M. Knepper
Registration No. 44,189
1560 Broadway, Suite 1200
Denver, Colorado 80202-5141
(303) 863-9700

Date: February 21, 2003

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Claim 1 has been amended as follows:

1. (Once Amended) A system for launching a projectile to remove a body of rock in

an excavation, comprising:

a projectile that includes:

a nose, the nose being one of substantially flat and concave to inhibit deflection of
the projectile from a face of the rock;

a body containing an explosive charge; and

a tail having a plurality of [transversely oriented] fins to control the trajectory of
the projectile; and

a tube for launching the projectile.

Claims 37-39 are new.



EXHIBIT B

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Date 2/21/03

Initial: AM1

PTO Stamp indicates receipt of: Patent Matter Trademark Matter

Application Docket No.: 3957-8-DIV

Applicant: MICKE et al.

Title or Mark: "METHOD-AND APPARATUS FOR REMOVING OBSTRUCTIONS IN MINES"

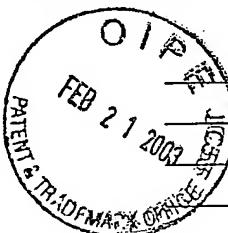
Serial/Reg. No.: 10/005,797

Filed/Issued Date: November 2, 2001

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of Pages in Specification

of Pages in Claims

of Sheets in Drawings

of Pages in Seq. Listing

LIST ALL DOCUMENTS BEING SENT TO PATENT OFFICE:

Amendment and Response; Information Disclosure Statement; PTO Form 1449; copies of three references

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:

MICKE et al.

Serial No.: 10/005,797

Filed: November 2, 2001

Atty. File No.: 3957-8-DIV

For: "METHOD AND APPARATUS FOR
REMOVING OBSTRUCTIONS IN
MINES"

Assistant Commissioner for Patents
Washington, D.C. 20231

) Group Art Unit: 3643

) Examiner: Price, Richard Thomas Jr.

) AMENDMENT AND RESPONSE

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TYPED OR PRINTED NAME: Aimee M. Thuerk

SIGNATURE: Aimee M. Thuerk

Dear Sir:

Applicant submits this Amendment and Response to address the Office Action having a mailing date of December 3, 2002. Although the Applicant believes that no fees are due for filing this Amendment and Response, please charge any fees deemed necessary to Deposit Account No. 19-1970. Reconsideration and withdrawal of the rejections of the claims are respectfully requested in view of the following amendments and remarks:

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Application No. 10/055,797

AMENDMENTS

IN THE CLAIMS:

Please amend Claim 1 and add new Claims 37-39 as follows:

1. (Once Amended) A system for launching a projectile to remove a body of rock in an excavation, comprising:

a projectile that includes:

a nose, the nose being one of substantially flat and concave to inhibit deflection of the projectile from a face of the rock;

a body containing an explosive charge; and

a tail having a plurality of fins to control the trajectory of the projectile;

and

a tube for launching the projectile.

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37. (New) The system of Claim 1, wherein said nose is concave.

38. (New) The system of Claim 1, wherein said nose is substantially flat.

39. (New) The system of Claim 1, wherein said nose has a diameter that is about equal to a maximum diameter of said projectile.

REMARKS

The above-identified patent application has been reviewed in light of the Examiner's Action dated December 3, 2002. In the amendments set forth above, Claim 1 has been amended without intending to abandon or to dedicate to the public any patentable subject matter, and without narrowing the claim, Claims 37-39 are new, and no claims have been canceled. Accordingly, Claims 1-8 and 37-39 are now pending. As set out more fully below, reconsideration and withdrawal of the rejections of the claims are respectfully requested.

Claims 1-8 stand rejected under 35 U.S.C. §103 as being unpatentable over U.S. Patent No. 5,485,787 to Bowcutt et al. ("Bowcutt"). In order to establish a *prima facie* case of obviousness under 35 U.S.C. §103, there must be some suggestion or motivation to modify the reference, there must be a reasonable expectation of success, and the prior art reference must teach or suggest all of the claim limitations. (MPEP §2143). It is submitted that a *prima facie* case to reject Claims 1-8 has not been established. In particular, and as discussed more fully below, Bowcutt does not teach, suggest or disclose at least the feature of a projectile having a nose that is one of substantially flat and concave. Accordingly, for at least this reason, Claims 1-8 are not obvious in view of Bowcutt.

The Bowcutt reference is generally directed to a gas gun launched scramjet test projectile. The test projectile discussed by Bowcutt is designed to travel at velocities greater than Mach 5. The projectile is propulsion-assisted and is used to enable the simulation of flow physics and the acquisition of performance data that correlates directly to those of a scramjet powered vehicle. (Bowcutt, col. 4, lns. 5-7). Accordingly, the projectile discussed by Bowcutt is concerned with

the integration of the air frame and propulsion systems for vehicles or projectiles traveling at supersonic and hypersonic speeds. (See Bowcutt, col. 1, lns. 27-30). The projectile illustrated by Bowcutt includes a nose cap 101 secured to the forebody 102 to form an external surface that extends from the projectile nose tip 103 rearwardly to the vicinity of the leading edge of the cowl 110. (Bowcutt, col. 5, lns. 5-9). Because the projectile 100 is intended to travel at velocities greater than Mach 5 (Bowcutt Abstract, Claim 1), and because parameters that include the forebody and inlet contraction ratios, the inlet efficiency, etc., impacts the performance of ramjet and scramjet systems (Bowcutt, col. 1, ln. 65 to col. 2, ln. 3), there is no teaching, suggestion or disclosure of a substantially flat or concave nose as recited by the pending claims. In addition, because removal of the nose 101 would foreshorten the compression surface S and leave an unfinished threaded portion T, Bowcutt cannot be understood as teaching, suggesting or disclosing operation of that reference's projectile without the tip 101. (Bowcutt, col. 4, ln. 63 to col. 5, ln. 9; Fig. 1). Furthermore, because Bowcutt is concerned with propelling a projectile at velocities of greater than Mach 5, Bowcutt teaches away from a projectile with a nose that is substantially flat or concave, or a nose that is adapted to inhibit deflection of the projectile from a face of rock in an excavation.

For the reasons set forth above, the Bowcutt reference does not teach, suggest or disclose a system for launching a projectile to remove a body of rock in an excavation as claimed. Furthermore, the Bowcutt reference teaches away from specific structural aspects of the claimed system. Accordingly, the rejections of Claims 1-8 should be reconsidered and withdrawn.

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New Claims 37-39 depend from Claim 1, and recite specific projectile nose configurations disclosed by the specification. Therefore, Claims 37-39 are allowable for at least the same reasons that Claim 1 is allowable. Claims 37-39 do not add new matter.

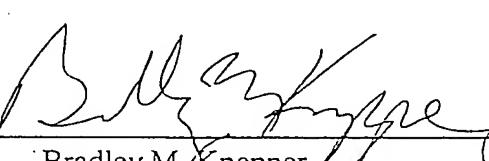
Attached hereto is a marked up version of the changes made to the claims by the current amendment, captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

Based upon the foregoing, Applicants believe that all pending claims are in condition for allowance and such disposition is respectfully requested. In the event that a telephone conversation would further prosecution and/or expedite allowance, the Examiner is invited to contact the undersigned.

Respectfully submitted,

SHERIDAN ROSS P.C.

By:



Bradley M. Knepper
Registration No. 44,189
1560 Broadway, Suite 1200
Denver, Colorado 80202-5141
(303) 863-9700

Date: February 21, 2003



Application No. 10/055,797

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Claim 1 has been amended as follows:

1. (Once Amended) A system for launching a projectile to remove a body of rock in an excavation, comprising:

a projectile that includes:

a nose, the nose being one of substantially flat and concave to inhibit deflection of the projectile from a face of the rock;

a body containing an explosive charge; and

a tail having a plurality of [transversely oriented] fins to control the trajectory of the projectile; and

a tube for launching the projectile.

Claims 37-39 are new.

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